width with LWAS could be another mechanism for the further reduction of the moment with that type of insole.
The analyses of biomechanical parameters at subtalar joints revealed that the change of valgus angle at the joints was smaller with LWAS than with LW, while the magnitude of subtalar adduction moment was similar for LW and LWAS. This may indicate that LWAS could allow the subject to walk in a more natural manner, while exerting load shift similar to that with LW.
Conclusions: The addition of an arch support to the laterally wedged insole reduced knee adduction moment more efficiently than the conventional laterally wedged insoles, presumably through the reduction of the toe-out angle and step width. Current results also indicated that the conventional laterally wedged insole could have potential drawbacks to induce toe-out gait with wider stance, which might impair its biomechanical effects. The result of insole therapy for medial knee OA could be significantly improved by the addition of an arch support to the laterally wedged insole.

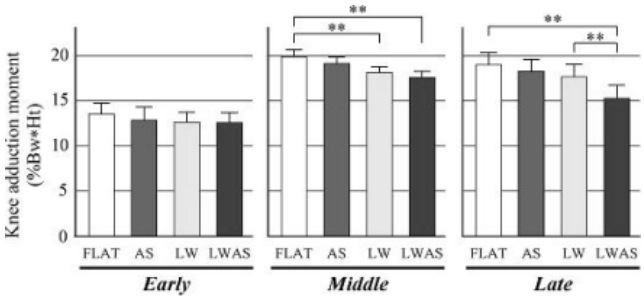

Figure 1. External adduction moment of the knee joint with the four types of insoles. Average moments in early, middle and late sections of the stance phase are shown. Values are the mean + SEM.

124 CAN SPECIFIC GAIT CHARACTERISTICS BE AN INDICATOR FOR THE SEVERITY OF KNEE OSTEOARTHRITIS?

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Purpose: The assessment of knee osteoarthritis (OA) severity is usually based on the integration of physical examination, radiographic grading scale and self-evaluation questionnaires. Previous studies have characterized the gait spatial and temporal patterns in patients with knee OA. These patients demonstrate lower values of single limb support phase (SLS) compared to a healthy population. However, this characteristic has never been related to the severity of knee OA. The purpose of the study is to investigate the correlation between SLS, Western Ontario and McMaster university questionnaire (WOMAC), SF-36 and Kellgren & Lawrence (K&L) scale, and to examine whether the SLS value can serve as an indicator for the severity of knee OA.
Methods: The study was conducted on 136 (86 females and 50 males) adults with bilateral knee OA and genu varum deformity. Patients underwent a physical and radiographic evaluation, and completed the WOMAC and the SF-36 health survey. Patients were then asked to walk barefoot at a self-selected speed on a computerized mat. SLS values were obtained for further analysis. Statistical analysis examined the correlation between SLS, WOMAC, SF-36 and K&L scale. Further analysis divided the patients into five quintiles based on their SLS values and examined the differences between the SLS quintiles and WOMAC and SF-36 scores.
Results: The correlation between K&L scale and WOMAC (Pain & Function) and SF-36 was 0.18, 0.24 and 0.26, respectively. Higher correlation was found between SLS and WOMAC (Pain & Function) and SF-36 (0.47, 0.50 and 0.47, respectively). Significant differences in WOMAC (Pain & Function) and SF-36 were found between the SLS groups ($P < 0.001$).
Conclusions: Single limb support value was found to be a significant objective indicator for the severity of pain, function and quality of life in knee OA. Hence, we suggest adding the SLS value as a parameter in the assessment of knee OA.

125 DO FEMALE GAIT PATTERNS DIFFER FROM MALE GAIT PATTERNS IN KNEE OSTEOARTHRITIS?

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Purpose: Females are at a higher risk to develop knee osteoarthritis (OA) and have higher rates of disability compared to males. In recent years, data has been accumulated on the differences in gait patterns of patients with knee OA compared to the healthy population. However, there is lack of information regarding the gender differences in gait patterns of patients with knee OA.
The purpose of this study was to investigate differences in spatio-temporal parameters between males and females with knee OA.
Methods: The study was conducted on 136 (86 females and 50 males) adults with knee OA and genu varum deformity. Patients were asked to walk barefoot at a self-selected speed on a computerized mat. The following parameters of the involved limb were evaluated: cadence, normalized velocity, normalized step length, single limb support (SLS), double limb support (DLS), stance, swing and foot placement angle. T-Test for normal distribution was conducted to examine gender differences.
Results: Males and females did not differ in age, BMI and Kellgren & Lawrence grading scale for the severity of knee OA. There were no differences in normalized velocity, cadence and normalized step length. However, significant differences were found between males and females in the following parameters (expressed as percent of gait cycle): SLS (males: 36.50±2.27, females: 34.98±3.72 $P < 0.01$), DLS (males: 25.15±3.67, females: 28.21±6.60 $P < 0.01$), stance (males: 61.46±1.81, females: 63.09±3.23, $P < 0.01$), swing (males: 38.53±1.82, females: 36.91±3.23 $P < 0.01$) and foot placement angle (males: 9.30º±5.49, females: 5.84º±5.18 $P < 0.01$)
Conclusions: Females with knee OA have lower SLS and swing values and higher DLS and stance values, compared to males. The findings might imply that females with knee OA have lower ability to bear weight on the affected limb and this might coincide with the higher disability rates in females with knee OA.

126 THE RELIABILITY OF A COMPUTREIZED GAIT MAT IN MEASUREMENT OF SPATIO-TEMPORAL PARAMETERS IN KNEE OSTEOARTHRITIS POPULATION

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Purpose: In recent years, data has accumulated on the differences of gait patterns in patients with knee osteoarthritis (OA) as compared to healthy population. Better understanding and characterization of these altered gait patterns might be beneficial in assessing the severity of the disease as well as assessing the effectiveness of a given intervention. Prior to using an instrument to determine the above claims, there is a need to evaluate its reliability in a specific population. The purpose of the study was to examine the reliability of a computerized mat in patients with knee OA.
Methods: The study was conducted on 41 patients diagnosed with knee OA. Patients were asked to walk barefoot at a self-selected speed on GAITRite® mat. A 2nd test was conducted 15 min after the completion of the 1st test. The following spatio-temporal parameters were measured: cadence, normalized velocity, normalized step length, single limb support, double limb support, stance, swing, base of support and foot placement angle. Test-retest reliability was evaluated using Pearson correlation for scales with normal distribution and Spearman correlation for skewed scales.
Results: High test-retest reliability was found in the following parameters: normalized velocity, cadence, normalized step length (r ranged between 0.85−0.95), stance, swing, single limb support, double limb support (r ranged between 0.88−0.91), base of support and foot placement angle (r ranged between 0.91−0.95).
Conclusions: Our results demonstrated high reliability of the computerized mat as a tool to assess spatial and temporal parameters of gait in a population with knee OA.